東京大學

地震研究所彙報別册

第4号 第3册

ウオルドン重力計による日本全国の重力測定

(IV) ブーゲー異常分布地圖

昭和29年9月

BULLETIN

OF

THE EARTHQUAKE RESEARCH INSTITUTE

TOKYO UNIVERSITY

SUPPLEMENTARY VOLUME IV

PART III

Gravity Survey along the Lines of Precise Levels throughout Japan by Means of a WORDEN Gravimeter

Part IV. Map of BOUGUER Anomaly Distribution in Japan Based on Approximately 4,500 Measurements.

September, 1954

本彙報ハ年4回 (但シ第1號ヨリ第6號マデハ不定期ニ, 第7號ハ3冊トシテ發行セリ), 彙報別冊ハ不定期ニ發行ス.

本彙報掲載ノ論文及ビ報告ノ内容ニ關シテハ著者ノミニ其責任アルモノトス.

本彙報ニ關スル照會通信ハ東京大學地震研究所長ヘ宛テラレタシ.

The Bulletin is published quarterly. (Vols. I–VI were published at irregular intervals and Vol. VII consisted of three parts.)
Supplementary Volume is published at irregular interval.

The authors of the papers alone are responsible for the statements and opinions contained in their respective papers.

All communications relating to this Bulletin should be addressed to the Director of the Earthquake Research Institute, Tokyo University.

Gravity Survey along the Lines of Precise Levels throughout Japan by Means of a WORDEN Gravimeter.

Part IV. Map of BOUGUER Anomaly Distribution in Japan Based on Approximately 4,500 Measurements.

By Chuji TSUBOI,

Earthquake Research Institute.

(Read June 22, 1954.—Received Sept. 1, 1954.)

The work to determine the gravity value at every other one of the bench marks laid along the lines of precise levels throughout Japan (except Hokkaidô) by means of a WORDEN gravimeter was started in the spring of 1951 under the writer's supervision.

The work progressed satisfactorily and after a comparatively short time of three years, it successfully arrived at its goal in June, 1954. What we had in mind at the outset was almost perfectly realised. The gravity stations which were occupied totalled about 3,500 in number. The distance covered by our field party was well over 40,000 km. Such a big project as this could have never been accomplished without good team work on the part of those who are directly engaged in the field and desk works and also the hearty supports, both of direct and indirect nature, on the part of those with whom we have been in touch concerning the administrative and financial affairs connected with the present work. It gives the writer great pleasure to record with thanks the names of those who have been particularly helpful in promoting and accomplishing the present work:

Prof. Nobuji NASU
Director, Earthquake Research Institute,

Prof. Hiromichi TSUYA
Former Director, Earthquake Research Institute,

Mr. Katsuji NAKANISHI
Ministry of Education,

Mr. Kiyoshi OKANO
Ministry of Education,

Mr. Mikizo TSURUTA
Finance Section, Tokyo University,

Mr. Akira JITSUKAWA
Expert, Earthquake Research Institute,

Mr. Hirokazu TAJIMA
Expert, Earthquake Research Institute,

Mrs. Sachiko INOUE
Computor, Department of Geophysics, Tokyo University,

Miss Kazuko SEKI
Computor, Department of Geophysics, Tokyo University.

However the writer is not suggesting that these are the only persons who have helped us. On the contrary, a number of officials and individuals not named here have assisted us greatly in various ways. It is only because there are happily too many of them that their names are not exhaustively listed here. None the less the writer's deep thanks go to these persons.

The results of measurements have been published in the proceedings of the Japan Academy (TSUBOI et al. 1953, 1954) in a series of short reports separately for each of the seven districts into which Japan is divided, and much more detailed reports with numerical data in the Supplementary Volumes of the Bulletin of the Earthquake Research Institute (TSUBOI et al. 1953, 1954). So far two of the latter series have appeared and it will take another year or two before all the data can be published in a printed form. But since we have already the final results, we thought it profitable and advisable to publish the map showing the BOUGUER anomaly distribution throughout Japan prior to the completion of the detailed serial reports with numerical tables.

In the meantime, the Geographical Survey Institute team has made a gravimeter survey in Hokkaidô following a program like ours. They have finished approximately 1,000 measurements on that island. Thus there are now about 4,500 available gravimeter measurements altogether, on the basis of which to investigate the geophysical structure of the Japanese islands, one of the most interesting regions in the world from the geophysical point of view. Dr. K. MUTO, Director of the Geographical Survey Institute, has kindly consented to the inclusion of the results obtained by his Institute in our map so as to make a unified study possible. This, I believe, will be welcomed by those who are interested in this problem.

The map attached here shows the distribution of the BOUGUER gravity anomalies in Japan based on the International Formula. The contour lines are drawn at every 5 mgals. While the positions of the contour lines are accurate where they meet the lines of measurements, no similar accuracy can of course be claimed for those in the intervenient parts.

The interpretation of the distribution of the BOUGUER anomalies is of great importance and interest, and is naturally being attempted by the writer. However it will take a year or two at least for the whole work to be finished and the results to be published. The object of the present publication is only to furnish the map to those who are interested in the present work so as to make their own investigation possible.

References

TSUBOI, C., et al.
Gravity Survey along the Lines of Precise Levels throughout Japan by Means of a WORDEN Gravimeter.
Part 1 Shikoku District. Bull. Earthq. Res. Inst. Suppl. Vol., **4** (1953), 1.
Part 2 Chûgoku District. ibid., **4** (1954), 48.
Part 3 Supplement to the Previous Report of the Gravity Survey in Shikoku, ibid., **4** (1954), 117.
Gravity Measurements along the Lines of Precise Levels over Whole Japan by Means of a WORDEN Gravimeter.
Part 1 Shikoku District. Proc. Japan Acad., **29** (1953), 235.
Part 2 Chûgoku District. ibid., **29** (1953), 311.
Part 3 Kinki District. ibid., **29** (1953), 316.
Part 4 Tôhoku District. ibid., **29** (1953), 503.
Part 5 Chûbu District. ibid., **29** (1953), 550.
Part 6 Kantô District. ibid., **29** (1953), 556.
Part 7 Kyûshû District. ibid., **30** (1954), 594.

ウォルドン重力計による日本全国の重力測定
第四報　ブーゲー異常分布地図

坪　井　忠　二

1951 年春に着手した重力測定は，約3年という比較的短時間を費しただけで，1954 年 6 月に全部完了した．測点数は約 3,500 である．

一方地理調査所は，北海道において約 1,000 点の測定をすませた．

合計 4,500 点における値が知られたのであるから，これらの全部を統一的に計算し，ブーゲー異常を示す 1 枚の地図を編集したら，有意義であると考える．くわしい報告や解釈を発表するのにはまだ若干の時間を要するので，それを待つことなく，前以てこの図だけを出版しておく次第である．

昭和29年10月10日 印刷
昭和29年10月15日 發行

東京都文京區本富士町一番地
東京大學構內
編纂兼發行者 東京大學地震研究所

東京都千代田區富士見町一丁目十番地
印刷者 笠井康賴

東京都千代田區富士見町一丁目十番地
印刷所 株式會社 國際文献印刷社

賣捌所 東京都千代田區神田一ツ橋通
岩波書店

東京都中央區日本橋通二丁目六番地
丸善株式會社

Sold by
Iwanami Shoten,
Hitotsubashi dôri, Chiyoda-ku, Tôkyô,
and
Maruzen Co., Ltd.,
Nihonbashi dôri, Chûô-ku, Tôkyô.
Price of this copy: 193 Yen. (Postage exclusive.)

東京大學

地震研究所彙報別冊

第4号 第3冊

ウォルトン重力計による日本全国の重力測定

IV ブーゲー異常分布地図

昭和29年9月

BULLETIN

OF

THE EARTHQUAKE RESEARCH INSTITUTE

TOKYO UNIVERSITY

SUPPLEMENTARY VOLUME IV

PART III

Gravity Survey along the Lines of Precise Levels throughout Japan by Means of a WORDEN Gravimeter

Part IV. Map of BOUGUER Anomaly Distribution in Japan Based on Approximately 1,500 Measurements.

September, 1954

BOUGUER ANOMALIES IN JAPAN

BASED ON THE INTERNATIONAL FORMULA

COMPILED
BY
CHŪJI TSUBOI

ON THE BASIS OF APPROXIMATELY
3,500 MEASUREMENTS CARRIED OUT BY THE
EARTHQUAKE RESEARCH INSTITUTE (HONSHŪ, SHIKOKU, KYŪSHŪ)
AND
1,000 MEASUREMENTS CARRIED OUT BY THE
GEOGRAPHICAL SURVEY INSTITUTE (HOKKAIDŌ)

1954

HOKKAIDŌ
HONSHŪ
SHIKOKU
KYŪSHŪ
SEA OF JAPAN
PACIFIC OCEAN

• GRAVIMETER STATION

SCALE
1:2000000
50 25 0 50 100 150 200 Km
30 15 0 25 50 75 100 120 Miles

Fig. 1 BOUGUER Anomalies in Japan based on the International Formula. (mgal)

BOUGUER ANOMALIES IN JAPAN

BASED ON THE INTERNATIONAL FORMULA

COMPILED

BY

CHŪJI TSUBOI

ON THE BASIS OF APPROXIMATELY
3,500 MEASUREMENTS CARRIED OUT BY THE
EARTHQUAKE RESEARCH INSTITUTE (HONSHŪ, SHIKOKU, KYŪSHŪ)
AND
1,000 MEASUREMENTS CARRIED OUT BY THE
GEOGRAPHICAL SURVEY INSTITUTE (HOKKAIDŌ)

1954

HOKKAIDŌ

HONSHŪ

SHIKOKU

KYŪSHŪ

SEA OF JAPAN

PACIFIC OCEAN

128° 130° 132° 134° 136° 138° 140° 142° 144°

46° 44° 42° 40° 38° 36° 34° 32° 30°

• GRAVIMETER STATION

SCALE
1:2000000

50 25 0 50 100 150 200 Km
30 15 0 25 50 75 100 120 Miles

Fig. 1 Bouguer Anomalies in Japan based on the International Formula. (mgal)

(震研彙報 別冊第四号 図版 附共)